

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A proton conductive membrane comprising:  
layered clay mineral powder which is a cation exchanger or an anion exchanger; and  
a first crosslinking structure including an -O-SO<sub>2</sub>-O- group which crosslinks particles of the layered clay mineral powder;  
wherein the layered clay mineral powder is the anion exchanger, and an acid has been inserted between layers of the particles of the layered clay mineral powder.
2. (Original) The proton conductive membrane according to claim 1, wherein particles of the layered clay mineral powder have an acid site on a surface thereof, and the layered clay mineral powder in the proton conductive membrane has been applied by a modifying agent which contains one or more compounds selected from the group consisting of sulfuric acid and metal sulfates.
3. (Original) The proton conductive membrane according to claim 1, wherein a sulfo group exists on a surface of the particle of the layered clay mineral powder.
4. (Canceled).
5. (Currently Amended) The proton conductive membrane according to claim ~~[[4]]~~ 1, wherein the ~~strong~~ acid is tungstosilicic acid.
6. (Currently Amended) The proton conductive membrane according to claim ~~[[4]]~~ 1, wherein the proton conductive membrane comprises a second crosslinking

structure obtained by crosslinking the particles of the layered clay mineral powder using at least one of phosphoric acid and a compound containing a phosphate group.

7. (Currently Amended) A production method of a proton conductive membrane, comprising:

a preparing step of a preparing a spreading solution including layered clay mineral powder which is a cation exchanger or an anion exchanger and a modifying agent which contains one or more compounds selected from the group consisting of sulfuric acid and metal sulfates;

a spreading step of spreading the spreading solution on a substrate such that a liquid membrane is formed; and

a removing step of removing a solvent from the liquid membrane by drying;

wherein the preparing step includes a step of dispersing the layered clay mineral powder in the solvent such that a solution is obtained, and then adjusting pH of the solution to a predetermined pH, and a step of adding the modifying agent to the solution.

8. (Canceled).

9. (Currently Amended) The production method according to claim 7, wherein the production method includes an inserting step of inserting ~~a strong~~ an acid between layers of the particle of the layered clay mineral powder by immersing the layered clay mineral powder in ~~a strong~~ an acid solution before the preparing step.

10. (Currently Amended) The A production method according to claim 9, of a proton conductive membrane comprising:

a preparing step of a preparing a spreading solution including layered clay mineral powder which is a cation exchanger or an anion exchanger and a modifying agent which contains one or more compounds selected from the group consisting of sulfuric acid and metal sulfates;

a spreading step of spreading the spreading solution on a substrate such that a liquid membrane is formed;

a removing step of removing a solvent from the liquid membrane by drying; and

an inserting step of inserting an acid between layers of the particle of the layered clay mineral powder by immersing the layered clay mineral powder in an acid solution before the preparing step;

wherein the strong acid is tungstosilicic acid.

11. (Currently Amended) The A production method according to claim 9, of a proton conductive membrane comprising:

a preparing step of a preparing a spreading solution including layered clay mineral powder which is a cation exchanger or an anion exchanger and a modifying agent which contains one or more compounds selected from the group consisting of sulfuric acid and metal sulfates;

a spreading step of spreading the spreading solution on a substrate such that a liquid membrane is formed;

a removing step of removing a solvent from the liquid membrane by drying; and

an inserting step of inserting an acid between layers of the particle of the layered clay mineral powder by immersing the layered clay mineral powder in an acid solution before the preparing step;

wherein the ~~strong~~ acid solution is a nonaqueous solvent solution of the ~~strong~~ acid.

12. (Currently Amended) ~~The~~ A production method ~~according to claim 9, of a~~  
proton conductive membrane, comprising:

a preparing step of a preparing a spreading solution including layered clay mineral powder which is a cation exchanger or an anion exchanger and a modifying agent which contains one or more compounds selected from the group consisting of sulfuric acid and metal sulfates;

a spreading step of spreading the spreading solution on a substrate such that a liquid membrane is formed;

a removing step of removing a solvent from the liquid membrane by drying; and

an inserting step of inserting an acid between layers of the particle of the layered clay mineral powder by immersing the layered clay mineral powder in an acid solution before the preparing step;

wherein the modifying agent contains at least one of phosphoric acid and a compound containing a phosphate group.

13. (Original) The production method according to claim 7, wherein an acid site which reacts with at least one of the sulfuric acid and the metal sulfate exists on a surface of the particle of the layered clay mineral powder, the spreading liquid is obtained by mixing the at least one of the sulfuric acid and the metal sulfate and the layered clay mineral powder so that a sulfo group is introduced to the surface of the particle of the layered clay mineral powder in the preparing step, and amount of the at

least one of the sulfuric acid and the metal sulfate is excessive as compared with the number of the acid sites of the particles of the layered clay mineral powder.